Polygenic Risk Prediction of Heart Attack in Asians Enabled by Whole Genome Sequencing

Extensive Curation of Asian-Specific Genetic Variants Enables Identification of Individuals at Elevated Risk of a Heart Attack

SAN FRANCISCO, CA, UNITED STATES, September 14, 2022 /EINPresswire.com/ -- U.S. and Hong Kong-based Rainbow Genomics launches polygenic risk assessment for heart attack in Asian individuals using whole genome sequencing data. The test is particularly useful for confirming elevated lifetime risk for myocardial infarction in asymptomatic individuals.

This polygenic test relies on Asian-specific genetic variants. These genetic variants were meticulously curated by the Rainbow clinical teams, using public and non-published data, and were successfully replicated in multiple international studies using over 40,000 affected patients and matching controls during the last 15 years. These genetic variants are appropriate for risk assessment of East Asians, including Chinese, Japanese, and Koreans.

The genotypes are analyzed based on whole genome sequencing test data of patients, and the associated risk calculations are performed using standard statistical tools. The predictive power is sufficient to identify a subgroup of the East Asian population that is most likely to be at risk for a heart attack. In addition, monogenic mutations associated with abnormality of the cardiovascular system, which are determined by whole genome sequencing, will also be used. Based on both monogenic and polygenic variants, the resulted lifetime risk assessment will provide an additional factor that is complementary to traditional risk factors such as low-density lipoprotein (LDL) level, blood pressure, age, and gender. This heart attack risk assessment report is now part of the findings reported in Rainbow Genomics Adult 6000(TM) and Adult 8000(TM) Whole Genome Sequencing tests.

About the Rainbow Whole Genome Sequencing Test

The test provides five clinical reports:

1. Personal Health Assessment

• Cancers
• Cardiovascular Disorders

• Endocrine System Abnormality including Diabetes and Fatty Liver
• Sleep Disorders
• Hearing and Eye Disorders
• Skeletal and Bone Disorders
• Immune System Disorders
• Skin Abnormality
• Auto-inflammatory Disorders
• Behavioral Abnormality
• Neurological Disorders including Dementia and Alzheimer Disease

2. Reproductive Health Assessment

• Male Infertility
• Female Infertility

3. Whole Genome Carrier Status

• Carrier Screening Analysis of Disorders Recommended by the American College of Obstetricians and Gynecologists and the American College of Medical Genetics

• Whole Genome Carrier Analysis - Mutations in 2500 genes associated with recessive disorders that can be passed on to the patient's children

4. Common Disease Risk Assessment

• Common complex diseases such as diabetes, heart attack, and stroke are primarily caused by changes in multiple gene variants (polygenic risks). However, these variants are highly ethnic-specific. Polygenic risk assessment for ethnic-specific groups such as Asians is difficult because very few publications using Asian patients and healthy controls with statistical significance are available.

• Rainbow Genomics' expert-curated polygenic variants are highly ethnic-specific and are supported by large-scale genome wide association and replication studies using tens of thousands of patients and controls collectively from Asia, U.S. and European countries.

5. Pharmacogenomic Assessment of 185 Medications to Improve Clinical Outcome

• For chronic disorders, achieving risk-reduction targets through improving medication adherence is critical. Pharmacogenomic assessment enables high therapeutic efficacy through minimization of drug side effects, resulting in better treatment outcome.

About Rainbow Genomics

Rainbow Genomics (www.rainbowgenomics.com) is committed to providing clinically-validated genomic and proteomic testing to Asian, Caucasian, mixed-race, and local minority populations. The company delivers high diagnostic success for physicians, enabling timely-treatment for patients that can benefit from immediate medical interventions.

Utilizing a multi-technology-platform approach, including proteomics, whole genome, whole exome, RNA, long-read, methylation, single cell and Sanger sequencing, high-resolution microarray testing, and high-density DNA array genotyping, and through multiple international collaborations, Rainbow Genomics delivers a diagnostic yield meeting or exceeding the highest standards reported by leading U.S. and European medical institutions.

All Rainbow Genomics tests are performed in CLIA-certified and CAP-accredited high-complexity clinical laboratories. Patient privacy is protected by Rainbow's HIPAA-compliant clinical testing process.

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